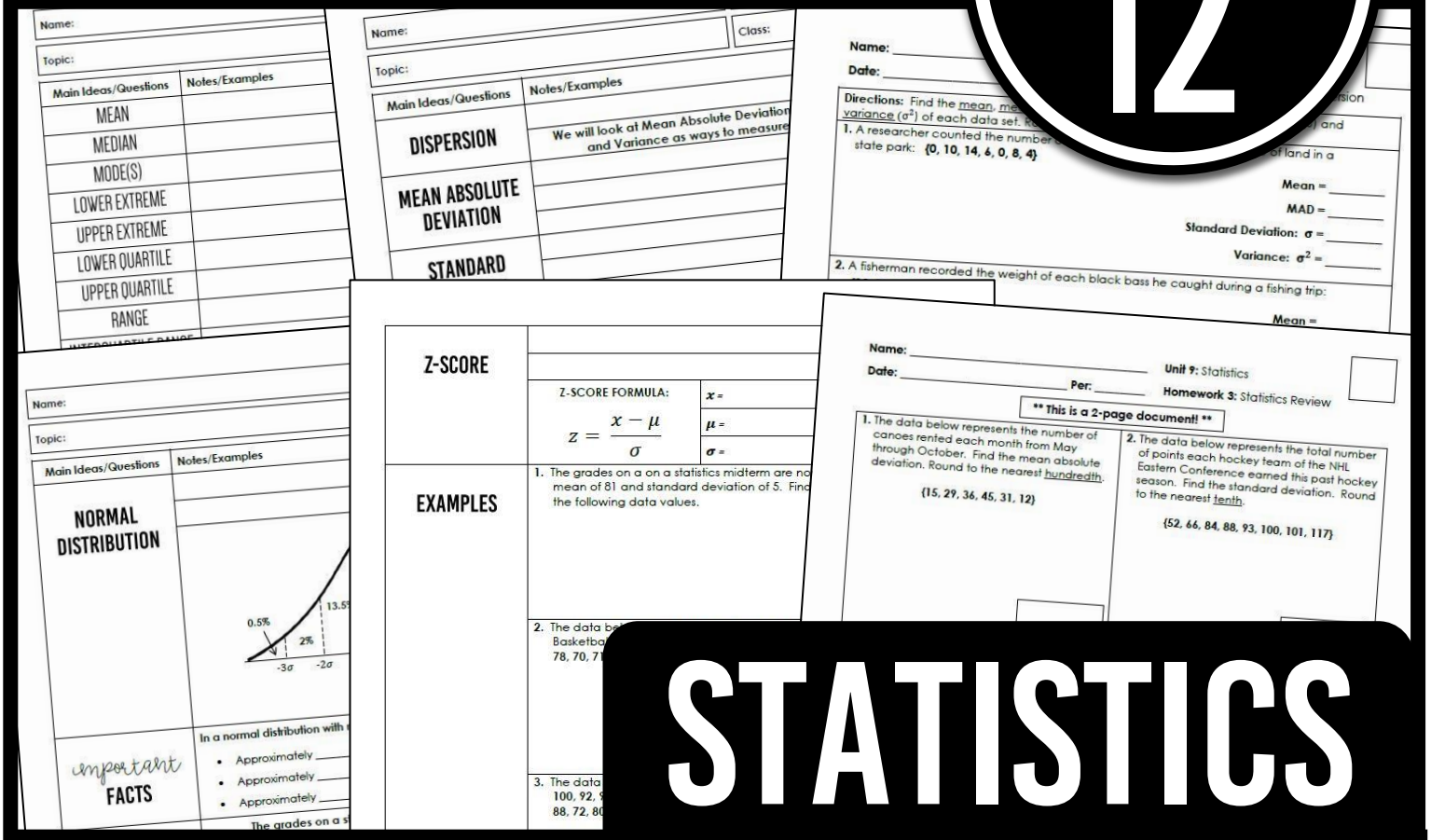
ALGEBRA I

Unit 12



STATISTICS

NOTES • HOMEWORK • QUIZ

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Unit 12 – Statistics: Sample Unit Outline

	TOPIC	HOMEWORK
DAY 1	Basic Statistics Review (Measures of Center, Box-and-Whisker Plots, Stem-and-Leaf Plots, Histograms, Stats on the Calc)	None
DAY 2	Measures of Dispersion: Mean Absolute Deviation (MAD), Standard Deviation, Variance	HW #1
DAY 3	Normal Distribution and Z-Scores	HW#2
DAY 4	Practice Stats Questions	HW #3
DAY 5	Statistics Quiz	None

Note: This is a very short unit that I used to complete prior to beginning review for our state test. The focus of this unit is meant to cover mean absolute deviation, standard deviation, variance, normal distribution, and z-scores. However, a very quick review of basic stats is provided for Day 1. For a more broken-down unit on basic topics, I recommend my Pre-Algebra Probability and Statistics Unit.

Name: | Date:

Topic: | Class:

Main Ideas/Questions	Notes/Examples
MEAN	
MEDIAN	
MODE(S)	
LOWER EXTREME	
UPPER EXTREME	
LOWER QUARTILE	
UPPER QUARTILE	
RANGE	
INTERQUARTILE RANGE	

STEM-AND-LEAF PLOTS

Stem-and-Leaf

9. **Test Scores**

Stem	Leaf
5	2 4 6 8
6	1 5 8
7	2 4 4 4 5
8	2 3 3
9	0 2 5 6

7 | 2 = 72

10.

Name: _____ **Unit 12:** Statistics

Date: _____ **Per:** _____ **Homework 1:** Measures of Dispersion

Directions: Find the mean, mean absolute deviation (MAD), standard deviation (σ) and variance (σ^2) of each data set. Round to the nearest tenth.

1. A researcher counted the number of river otters observed on each acre of land in a state park: **{0, 10, 14, 6, 0, 8, 4}**

Mean = ___

MAD = ___

Standard Deviation: σ = ___

Name: | Date:

Topic: | Class:

Main Ideas/Questions	Notes/Examples
DISPERSION	We will look at Mean Absolute Deviation (MAD), Standard De… and Variance as ways to measure the dispersion of dat…
MEAN ABSOLUTE DEVIATION	
STANDARD DEVIATION	

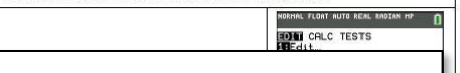
STATISTICS on the GRAPHING CALCULATOR

The graphing calculator is a powerful tool when it comes to measuring statistics. It can perform many of the calculating that we currently do by hand.

The scores 16 students received on a math quiz are shown below.

74, 98, 60, 72, 80, 91, 52, 73, 72, 66, 92, 68, 75, 66, 84, 82

Step 1: Go to STAT, EDIT.



Name: _____ **Unit 12:** Statistics

Date: _____ **Per:** _____ **Homework 2:** Normal Distribution & Z-Sc…

**** This is a 2-page document! ****

1. The scores from a statistics test were **{99, 60, 82, 78, 93, 71, 68, 86, 80, 95, 72, 64}**

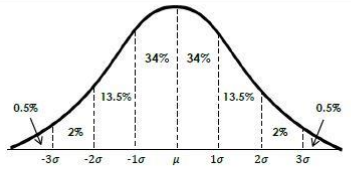
(a) Calculate the mean and standard deviation for the class. μ = _____ σ = _____

(b) Draw and label the normal distribution curve.

Name: | Date:

Topic: | Class:

Main Ideas/Questions	Notes/Examples
NORMAL DISTRIBUTION	



…ormal distribution with mean μ and standard deviation σ:

Z-SCORE

Z-SCORE FORMULA:

$$z = \frac{x - \mu}{\sigma}$$

x =

μ =

σ =

EXAMPLES

1. The grades on a … on a statistics midterm are … mean of 81 and standard deviation of 5. Fi… the following data values.

2. The data below represents heights (in inches … Basketball team members: **{76, 66, 67, 69, 7… 78, 70, 71, 73}**. Find the *z*-scores for each of …

3. The data below represents test scores on a … **100, 92, 92, 84, 68, 84, 92, 52, 56, 88, 62, 58, 8… 88, 72, 80}** Find the *z*-scores for each of the …

4. The *z*-scores of four students on algebra test … mean of the test was 85 and the standard d… student's test grade.

Student	z-Score
Zack	-0.75
Taylor	3.0
Ross	-2.50
Natalie	1.25

© Gin…

PRACTICE STATISTI…

1. The following data represents the weights of five mem… Find the mean absolute deviation for the weights. **{15…**

2. On a recent Latin quiz, two people scored a 100, three… people scored an 80, and one person scored a 70. Fi… these scores.

3. The data below shows the miles per gallon of six differe… variance of this data set. **{17, 19, 23, 27, 30, 34}**

4. Two data sets are given below. Find the difference in … **Set A:** {9, 12, 16, 19, 24} **Set B:** {2, 11, 2…

5. Katie is 62 inches tall. The mean height of her group o… standard deviation is 1.5. What is the z-score for Katie'…

6. An achievement test given to 4th graders had a mean… deviation of 15. If Tom's *z*-score was -0.60, what did he…

7. The data below represents the ages of the fifteen recr… The data has a mean of 27 and a standard deviation … tenth. How many of these data points have a *z*-score …

{21, 22, 24, 24, 25, 25, 25, 26, 27, 28, 29, 30, 32, 32, 35}

8. The information in the table represents quiz data for … classes. Find their actual quiz grades.

	Mean for Class	Standard Deviation for Class	Student's z-Score
Kate	83	5	1.6
Tristan	87	2.5	-2.8
Ryan	80	4	-0.5
Grace	83	5	3.2

Grace: _____

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Name: _____ **Unit 12:** Statistics

Date: _____ **Per:** _____ **Homework 3:** Stati…

**** This is a 2-page document! ****

1. The data below represents the number of canoes rented each month from May through October. Find the mean absolute deviation. Round to the nearest hundredth.

{15, 29, 36, 45, 31, 12}

2. The data below represe… of points each hockey … Eastern Conference ea… season. Find the stand… to the nearest tenth.

{52, 66, 84, 88, 93,…

3. On a recent Algebra quiz, 2 students scored 100, 4 students scored a 90, 5 students scored an 80, 3 students scored a 70, and 1 student scored a 60. Find the variance of this data. Round to the nearest hundredth.

4. Suppose a data set ha… What is the standard d… set?

5. Allison got a 50 on her last algebra quiz. If the mean of the class was 83 with a standard deviation of 11.2, what is Allison's *z*-score? Round to the nearest hundredth.

6. The mean price of reg… amongst several gas st… $3.52 with a standard … the gas station closest … charges $3.59 for regu… *z*-score? Round to the…

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Name: _____

Date: _____ **Per:** _____

Algebra I
Statistics Quiz

1. The time in minutes for each of Sam's phone calls this week are shown in the list.

{9, 15, 5, 7, 9, 12, 11, 4}

Which statement is true regarding the duration of his calls?

A. The median is greater than 10.
B. The mean is less than 8.
C. The range is less than 10.
D. The mode is greater than 7.

2. For the data set shown below, which measure is the greatest?

{5, 6, 6, 8, 9, 10}

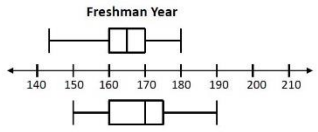
A. Mean
B. Median
C. Mode
D. Range

Jordan	Alex
60	63
69	70
85	79
68	67
80	65
73	72
65	68

3. Jordan and Alex are pitchers for the baseball team and are being evaluated by the coach. The speeds in miles per hour of each of their practice pitches is shown to the left. Which statement is true?

A. Jordan has a lower mean speed.
B. Jordan has a greater range of speeds.
C. Jordan has a lower median speed.
D. Alex's median speed is higher than Jordan's mean speed.

4. The box-and-whisker plot shows the heights in centimeters of high school seniors compared to their heights as freshman. Using the median as the measure, which is closest to the difference in height between the freshman and seniors?



A. 0 cm
B. 5 cm
C. 10 cm
D. 15 cm